

D-437

Ser. No. 10/072,489

AMENDMENTS TO THE CLAIMS:

Please replace the claims with the claims provided in the listing below wherein status, amendments, additions and cancellations are indicated.

1. (Original) A method of routing messages based on content comprising the steps of:

receiving messages from clients including response messages having a response field, request messages having a request field, and else messages having neither a response field nor a request field;

processing said response messages by determining if said response messages have a sender id and sending said response messages to the sender id when present;

processing said request messages in accordance with contents of said request fields and rules associated therewith including registering interest criteria for ones of said clients for interest in ones of said else messages, said registering of interest criteria including:

processing positive else registration requests by storing positive else registration request data in a first set associated with a sender id of the client sending said request message; and

processing negative else registration requests by storing negative else registration request data in a second set associated

D-437

Ser. No. 10/072,489

with said sender id of the client sending said request message;
and
processing else messages by the following steps for each respective one
of said respective ones of said clients:

testing data of said else message for correspondence with
said positive else registration data of said respective one of said
clients;

testing data of said else message for correspondence with
said negative else registration data of said respective one of said
clients; and

sending said else message to said respective one of said
clients only if there is correspondence with said positive else
registration data of said respective one of said clients and there is
not correspondence with said negative else registration data of
said respective one of said clients.

2. (New) A method of directing telecommunications messages between a
plurality of hosts from a telecommunications router, the method comprising:

D-437

Ser. No. 10/072,489

receiving the messages from a first host, the message being destined to the router or a second host;

wherein the messages includes information, the information being adapted for including an identification (id) field, the id field being further adapted for including one or more associated data items, the id field being adapted for identifying interest criteria, the interest criteria indicating the positive and negative interest of the host in having messages relating to types of information forwarded to the first host;

the method further comprising:

storing interest information for the host;

categorizing the messages based on the information in the message;

processing the message based on the message category, the processing step including forwarding the second host if the type of information in the message corresponds to the information that has been positively indicated in the interest criteria stored for the second host and not been negatively indicated in the interest criteria stored for the second host.

3. (New) The method of claim 2 wherein:

the id field is one or more of a request field, a response field, a response code field, a registration field, a rule field, a field-list field, a private tag field and a sender id field; and

D-437

Ser. No. 10/072,489

the rule field being adapted for including one or more of a forward all indicator, a round robin indicator and the interest criteria field.

4. (New) The method of claim 3 wherein the step of categorizing the message further comprises:

determining that the message is a response message if the id field contains the response field;

determining that the message is a request message if the id field includes the request field and does not include the response field; and

determining that the message is an else message if the id field does not include either the response field or the request field.

5. (New) The method of claim 4 wherein the message is a response message, the response field is adapted for including a data item for identifying the second host and the step of processing the message further comprises:

forwarding the response message to the second host if the message contains the sender id field and the host id data item that identifies the second host and the second host is known by the router;

ignoring the response message if the message contains the sender id field, the host id data item, and second host is unknown by the router; and

D-437

Ser. No. 10/072,489

ignoring a response message if the message does not contain the sender id field.

6. (New) The method of claim 5 wherein the response message wherein:
the sender id field contains routing information from the router and the private tag field contains information from the first host;
substantially each data item contained in the request message is in substantially the same order as contained in the request message; and
the response code field is indicative of a handling of the request that was completed without error if the associated data item so indicates, and the response code field is indicative of an incomplete or erred handling of the request if the associated data item so indicates.

7. (New) The method of claim 4 wherein the message is a request message and the step of categorizing the message further comprises:
determining that the message is an implicit request if so indicated in the associated data item for the request field; and
determining if the router itself or the second hosts is adapted for further processing the message if the associated data field so indicates.

D-437

Ser. No. 10/072,489

8. (New) The method of claim 7 wherein the router itself is not adapted for further processing the request message and the rule field identifies that the second host is adapted for further processing of the request, the message and the step of processing the message further comprises:

creating a sender id field if one does not exist;

appending the id of the first host to the sender id field;

identifying the second host by analyzing the rule field within the request;

and

forwarding the request message to the second host.

9. (New) The method of claim 7 wherein the second host is a plurality of hosts, the router itself is not adapted for further processing the request message and the rule field identifies a subset of the plurality of hosts that are adapted for further processing of the request, the message and the step of processing the message further comprises:

creating a sender id field if one does not exist;

appending the id of the first host to the sender id field;

identifying the hosts that are adapted for further processing the request by analyzing the rule field within the request; and

D-437

Ser. No. 10/072,489

forwarding the request message simultaneously to the hosts that are adapted for processing the request if the rule field includes a forward all indicator; and

forwarding the request message to the next of subset of hosts that are adapted for processing the request if the rule field includes a round robin indicator.

10. The method of claim 7 wherein the second host is a plurality of hosts, the request message is a request registration request message, the data item associated with the request field contains one or more of a registration data item and a request data item and the step of processing the message further comprises:

registering the interest criteria if the criteria has not already been associated with the first hosts in the router itself;

registering that the first hosts does not want to receive communications related to the interest criteria from more than one other host if the host previously wanted to receive the communications from the plurality of other hosts; and

registering that the first host does want to receive communications related to the interest criteria from the plurality of hosts if the first host previously did not want to receive the communications from more than one other host; and

notifying the first host in a response of the registrations.

D-437

Ser. No. 10/072,489

11. (New) The method of claim 4 wherein the message is an else message is an else registration-positive request message or an else registration-negative request message, wherein:

the else registration-positive request message is indicative of messages the first host wants to receive; and

the else registration-positive request message is indicative of messages the first host does not want to receive.

12. (New) The method of claim 11 wherein the else message is an else registration-positive request message, the interest criteria field contains a field-list field and a previously undefined field, and the step of processing the message further comprises:

analyzing the field-list field, the undefined field and the associated data items for each field, and assigning a triplet id to each field and associated data item, the triplet id including a number, the triplet id being associated with each field type, field id and data item;

sending a response to the first host; and

generating and updating a global interest table by grouping each assigned triplet id for each host.

D-437

Ser. No. 10/072,489

13. (New) The method of claim 12 wherein the else message is an else registration-negative request message, the interest criteria field contains a field-list field and a previously undefined field, and the step of processing the message further comprises:

analyzing the field-list field, the previously undefined field and the at least one associated data item for each, and assigning a triplet id to each field and associated data item, the triplet id including a number and being associated with each field type, field id, and associated data item;

sending a response to the first host; and

generating a table of unwanted messages by grouping each assigned triplet identifier for each host and not updating the global interest table.

14. (New) The method of claim 13 wherein the step of processing the else message further comprises:

registering an Interest-Criteria-to-Prevent-a-Host's-Receipt-of-Else-Message-It-Itself-Sends request for preventing the router from forwarding to the first host else messages initiated by the first host when the message contains information that correlates to the interest criteria for the first host;

processing Do-Not-Send-Me-Else-Messages-I-Sent-You request messages from the first host so that else messages received by the router are not sent back to the first host;

D-437

Ser. No. 10/072,489

processing request unregistration messages from the first host by removing interest criteria contained within the message from the interest criteria associate with the first host and forwarding a response to the first host indicating that the criteria has been unregistered; and

processing one or both of else unregistration-positive request messages and else unregistration-negative request messages from the first host and sending an acknowledging response to the first host.

15. (New) The method of claim 14 the interest criteria for the else message includes wanted-else messages and unwanted-else messages and the step of processing the message further comprises:

comparing the message with interest criteria for the first host and determining if the message corresponds to a wanted or an unwanted else message; and

forwarding an else message to the first host if the message corresponds to a wanted else message and does not correspond to an unwanted else message.

16. (New) The method of claim 15 wherein the step of processing the else message further comprises:

determining if one or more fields and associated data items in the else message corresponds to a triplet stored in the global interest table;

D-437

Ser. No. 10/072,489

constructing new triplets if there is a match between the information in the else message and the triplets in the global interest table; and

forming an input list containing each new triplet constructed from the else message;

comparing the information in the input list with the interest criteria list for wanted else messages for the second host;

determining if the second host has an interest in the else message based on the comparison of the input list with the interest criteria for wanted else messages for the second host;

comparing the information in the input list with the interest criteria list for unwanted else messages for the second host, the unwanted else comparison being performed only if there is a determination that the second host has an interest in the else message;

determining if the second host has no interest in the else message based on the comparison of the input list with the interest criteria for unwanted else messages for the second host; and

forwarding the else message to the second host only if there is both a determination that the second host has an interest in the else message and there is no determination that the second host has no interest in the else message.

D-437

Ser. No. 10/072,489

17. (New) The method of claim 16 wherein the first and second hosts each comprise one or more hosts separated by a plurality of routers, the method further comprising:

categorizing an initiating router of the connection as the child router;

categorizing a the router to which the first host is connected as the parent router;

categorizing routers having common parent routers as sibling routers;

categorizing a child router of a parent router as a grandchild router of the parent router's parent router;

wherein when a message sent from a child moves upwardly and a message sent from a parent moves downwardly; and

wherein a child router maintains a list of parent routers, a parent router identifies children routers as hosts.

18. (New) The method of claim 17 wherein at least one child router communicates with at least one parent router and wherein the step of processing the message further comprises:

forwarding, from the child router to the parent router, wanted-else messages for request messages that are of interest to the hosts stored with the child router upon an initial connection between the child router and the parent router;

D-437

Ser. No. 10/072,489

forwarding, from the child router to the parent router, interest criteria updates as the updates occur and while the child and parent router are connected;

sending, from the child to the parent router, a request message to unregister the interest criteria for hosts of the child router upon termination of the communication between the child and the parent router;

propagating else messages by unconditionally sending, from child to the parent, all else messages received by the child from the hosts of the child along with a Do-Not-Send-Me-Else-Messages-that-I-Send-You request message; and

propagating request messages by performing the steps of:

determining that the child itself cannot further process a received request message;

appending the first host id to the send id field;

sending the request message to the parent router; and

wherein the router is adapted for selectively not forwarding messages received by child routers to the parent routers.

19. (New) The method of claim 18 wherein the plurality of routers being connected in a tree or a loop format, wherein the step of processing the messages further comprises:

D-437

Ser. No. 10/072,489

forwarding else messages upwardly in a tree unconditionally and
forwarding messages downwardly in a tree based on interest criteria registration in
each router; and

forwarding interest criteria registration upwardly through a tree
unconditionally.

20. (New) The method of claim 19 wherein a plurality of tree structures are
included, each tree structure having a plurality of routers and the step of
processing the messages further comprises:

establishing peer routers between each of the plurality of tree structures;

forwarding wanted else messages and interest criteria updates between
peer routers;

sending, from the peer router being updated to the peer router providing
the updates, a mark-peer request message indicating that the message has been
received.

21. (New) The method of claim 4 wherein the router operates as a host in a set
of redundant hosts, the method further comprising:

allowing one of the redundant host to send Suppress-Some-of-My-
Messages request messages to the router, wherein the router ignores response or
else messages from the redundant host.

D-437

Ser. No. 10/072,489

22. (New) A router that forwards telecommunications information according to the method of claim 2.